AIR QUALITY PERMIT

Issued To: Montola – a Division of Sustainable Systems, LLC
Hwy 2 East, PO Pox 478
Culbertson, MT 59218

Permit: #2949-02
Application Complete: 8/17/06
Preliminary Determination Issued: 9/26/06
Department's Decision Issued: 10/27/06
Permit Final: 11/14/06
AFS: #085-0005

An air quality permit, with conditions, is hereby granted to Montola – a Division of Sustainable Systems, LLC (Montola), pursuant to Sections 75-2-204 and 211 of the Montana Code annotated (MCA), as amended, and Administrative Rules of Montana (ARM) 17.8.740, *et seq*., as amended, for the following:

SECTION I: Permitted Facilities

A. Plant Location

Montola owns and operates an oilseed processing plant located one mile east of Culbertson, Montana on Highway 2. The legal location of this facility is the SW¼ & SE¼ of Section 28, Township 28 North, Range 56 East, in Roosevelt County, Montana. A complete list of the permitted equipment is contained in Section I.A of the Permit Analysis.

B. Current Permit Action

On December 26, 2005, the Department of Environmental Quality (Department) received a request to transfer the permit ownership from Sheridan Electric Co-op, Inc. to Sustainable Systems, LLC. The Culbertson facility will remain under the name of Montola, as a division of the company. On June 15, 2006, the Department received an application for the replacement of the existing 300-ton per day (tpd) oilseed extraction equipment with a new 600-tpd extractor, desolventizer/toaster-dryer/cooler (DTDC), and distillation system. The facility will become a major source under the Prevention of Significant Deterioration (PSD) program, because the potential to emit exceeds 250 tons per year (tpy) of Volatile Organic Compound (VOC). The application was deemed complete on August 17, 2006. The current permit action will also update the permit to reflect the current permit language and rule references used by the Department. Permit #2949-02 replaces Permit #2949-01.

SECTION II: Conditions and Limitations

A. Operational and Emission Limitations

1. Montola shall not process more than 219,000 tpy of oilseed on a rolling 12-month basis (ARM 17.8.749).

2. Emissions from the entire vegetable oil production process, including oilseed extractors, DTDC, and distillation system, shall not exceed the following limits on a rolling 12-month basis, except during periods of initial startup, malfunction, or shutdown (ARM 17.8.752, 17.8.342, and 40 CFR 63 Subpart GGGG):

- 0.7 gallons of solvent per ton (gal/ton) of safflower or rapeseed (canola) processed
- 0.4 gal/ton of sunflower processed
- Other limits in Table 1 of 40 CFR 63.2840, as applicable

3. Emissions of particulate matter with an aerodynamic diameter of less than 10 microns (PM_{10}) from the DTDC Deck will be controlled by two high efficiency DTDC Deck cyclones. PM_{10} emissions shall not exceed 0.79 lb/hr from each cyclone (ARM 17.8.752).

4. Montola shall at all times operate and maintain the facility, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions (ARM 17.8.752 and 40 CFR 63.6(e)).

5. Montola shall operate and maintain the enclosures on all grain elevator legs and conveying systems (ARM 17.8.749).

6. Montola shall not cause or authorize emissions to be discharged into the outdoor atmosphere from any source installed on or before November 23, 1968, that exhibit an opacity of 40% or greater averaged over 6 consecutive minutes (ARM 17.8.304).

7. Montola shall not cause or authorize emissions to be discharged into the outdoor atmosphere from any sources installed after November 23, 1968, that exhibit an opacity of 20% or greater averaged over 6 consecutive minutes (ARM 17.8.304).

8. Montola shall not cause or authorize the use of any street, road, or parking area without taking reasonable precautions to control emissions of airborne particulate matter (ARM 17.8.308).

9. Montola shall treat all unpaved portions of the access roads, parking lots, or general plant area with water and/or chemical dust suppressant as necessary to maintain compliance with the reasonable precautions limitation in Section II.A.8 (ARM 17.8.749).

10. Montola shall comply with all the applicable standards and limitations of 40 CFR 63, Subpart GGGG – National Emission Standards for Hazardous Air Pollutants: Solvent Extraction for Vegetable Oil Production, as it applies to this facility, including compliance with the requirements for Initial Startup, which is limited to a cumulative total of three months during the first year of operation (ARM 17.8.342 and 40 CFR 63, Subpart GGGG).

B. Testing Requirements

1. The two DTDC Deck cyclones shall initially be tested for PM_{10} to demonstrate compliance with the emission limits specified in Section II.A.3. The initial source tests shall be conducted within 180 days of the initial start up date of the DTDC Deck (ARM 17.8.105 and ARM 17.8.749).

2. All compliance source tests shall conform to the requirements of the Montana Source Test Protocol and Procedures Manual (ARM 17.8.106).

3. The Department may require additional testing (ARM 17.8.105).

C. Operational Recordkeeping and Reporting Requirements

1. Montola shall supply the Department with annual production information for all emission points, as required by the Department in the annual emission inventory request. The request will include, but is not limited to, all sources of emissions identified in the emission inventory contained in the permit analysis.

Production information shall be gathered on a calendar-year basis and submitted to the Department by the date required in the emission inventory request. Information shall be in the units required by the Department. This information may be used to calculate operating fees, based on actual emissions from the facility, and/or to verify compliance with permit limitations (ARM 17.8.505).

In addition, Montola shall submit the following information annually to the Department with the emission inventory, but no later than March 1 of each year. This information is required for the annual emission inventory, as well as to verify compliance with permit conditions (ARM 17.8.505).

a. Types and amounts of each oilseed processed (tpy)

b. Amount of solvent used for each oilseed type

c. Range of n-hexane concentration in the solvent used

d. Calculated compliance ratio, by month, in conformance with Section II.C.6

2. Montola shall notify the Department of any construction or improvement project conducted pursuant to ARM 17.8.745, that would include a change in control equipment, stack height, stack diameter, stack flow, stack gas temperature, source location or fuel specifications, or would result in an increase in source capacity above its permitted operation or the addition of a new emission unit. The notice must be submitted to the Department, in writing, 10 days prior to start up or use of the proposed de minimis change, or as soon as reasonably practicable in the event of an unanticipated circumstance causing the de minimis change, and must include the information requested in ARM 17.8.745(1)(d) (ARM 17.8.745).

3. Montola shall comply with all the applicable monitoring, recordkeeping and notification requirements of 40 CFR 63, Subpart GGGG – National Emission Standards for Hazardous Air Pollutants: Solvent Extraction for Vegetable Oil Production, as it applies to this facility (ARM 17.8.342 and 40 CFR 63, Subpart GGGG).

4. Montola shall document, by month, the amount of each type of oilseed processed by the facility. By the end of each calendar month following an operating month, Montola shall total the amount of each type of oilseed processed by the facility during the previous 12 months in order to demonstrate compliance with the limitations in Section II.A.1 and Section II.A.2 (ARM 17.8.749).

5. Montola shall document, by month, the solvent loss from the vegetable oil production process. By the end of each calendar month following an operating month, Montola shall determine both the gallons of solvent loss and the gallons of solvent loss per ton of oilseed for each type of oilseed processed during the previous 12 months, in order to demonstrate compliance with the limitations in Section II.A.2 and 40 CFR 63 Subpart GGGG (ARM 17.8.749 and 40 CFR 63 Subpart GGGG).

6. Montola shall document, by month, the HAP compliance ratio for the facility in conformance with the requirements in 40 CFR 63 Subpart GGGG (ARM 17.8.342 and 40 CFR 63 Subpart GGGG).

7. Montola shall maintain all records compiled in accordance with this permit as a permanent business record for at least five years following the date of the measurement. The records must be available at the plant site for inspection by the Department, and must be submitted to the Department upon request (ARM 17.8.749).

SECTION III: General Conditions

A. Inspection –Montola shall allow the Department's representatives access to the source at all reasonable times for the purpose of making inspections or surveys, collecting samples, obtaining data, auditing any monitoring equipment or observing any monitoring or testing, and otherwise conducting all necessary functions related to this permit.

B. Waiver – The permit and the terms, conditions, and matters stated herein shall be deemed accepted if Montola fails to appeal as indicated below.

C. Compliance with Statutes and Regulations – Nothing in this permit shall be construed as relieving Montola of the responsibility for complying with any applicable federal or Montana statute, rule, or standard, except as specifically provided in ARM 17.8.740, *et seq*. (ARM 17.8.756).

D. Enforcement – Violations of limitations, conditions and requirements contained herein may constitute grounds for permit revocation, penalties, or other enforcement action as specified in Section 75-2-401, *et seq*., MCA.

E. Appeals – Any person or persons jointly or severally adversely affected by the Department's decision may request, within 15 days after the Department renders its decision, upon affidavit setting forth the grounds therefore, a hearing before the Board of Environmental Review (Board). A hearing shall be held under the provisions of the Montana Administrative Procedures Act. The filing of a request for a hearing does not stay the Department's decision, unless the Board issues a stay upon receipt of a petition and a finding that a stay is appropriate under Section 75-2-211(11)(b), MCA. The issuance of a stay on a permit by the Board postpones the effective date of the Department's decision until conclusion of the hearing and issuance of a final decision by the Board. If a stay is not issued by the Board, the Department's decision on the application is final 16 days after the Department's decision is made.

F. Permit Inspection – As required by ARM 17.8.755, Inspection of Permit, a copy of the air quality permit shall be made available for inspection by the Department at the location of the source.

G. Permit Fee – Pursuant to Section 75-2-220, MCA, as amended by the 1991 Legislature, failure to pay the annual operation fee by Montola may be grounds for revocation of this permit, as required by that section and rules adopted thereunder by the Board.

H. Construction Commencement – Construction must begin within three years of permit issuance and proceed with due diligence until the project is complete or the permit shall be revoked (ARM 17.8.762).

Permit Analysis
Montola – a Division of Sustainable Systems, LLC.
Permit #2949-02

I. Introduction/Process Description

Montola – a Division of Sustainable Systems, LLC (Montola) owns and operates an oilseed processing plant located on Highway 2 East, approximately one mile east of Culbertson, Montana. The legal location of this facility is the SW 1/4 & SE 1/4 of Section 28, Township 28 North, Range 56 East, in Roosevelt County, Montana.

A. Permitted Equipment

Equipment used at this facility includes:

Description	Pollution Control Device/Practice
Eclipse Boiler (500 hp, 21 MMBTU/hr propane gas) - 1980	No controls
Hurst Boiler (500 hp, 21 MM BTU/hr propane gas) - 2002	No controls
Dixon Dowtherm Boiler (125 hp, 0.6 MMBTU/hr propane) - 1974	No controls
Mineral Oil Absorption Exhaust	Mineral Oil Scrubber
Solvent Metering Tanks #3 & #4	No controls
Bad Oil Tank #8 VO	No controls
Hexane Truck Unloading	No controls
Hexane Storage Tank	No controls
Hexane Purge Fan	No controls
Meal Silo #1 - #4	No controls
Meal Warehouse #1 & #2	No controls
Cooling Towers (Refinery and Solvent Plant – 800 & 1000 gpm)	No controls
Meal Grinder Discharge	Carter Day Cyclone
Seed Cleaner Discharge	Carter Day Cyclone
Expeller Steam Exhaust	No controls
Cooker Exhaust	No controls
Expander Steam Exhaust	No controls
Collet Cooler Exhaust	No controls
Vacuum Pump Discharges (Deodorizer and Vacuum Bleach Tank)	No controls
Wastewater Sump	No controls
Pond	No controls
Wastewater Lift Stations (Refinery, Solvent Plant, and Sanitary)	No controls
Railcar and Truck Meal Loading	Enclosure/Boots
Filter foot/Spent Bleaching Earth Disposal Area	No controls
Oilseed Unloading (Railcar and Truck)	No controls
Seed Storage Bins	Enclosures
Bucket Elevators & Conveying Systems	Enclosures
Fuel Tanks (diesel : 500-gal; propane: 30,000-gal, 500-gal office, 500-gal forklift, 500-gal portable)	No controls
600-ton per day oilseed extractor, desolventizer/toaster-dryer/cooler with high efficiency cyclones (DTDC), and distillation system	BACT

B. Source Description

Montola processes oilseeds: primarily sunflower, canola (rapeseed), and safflower. The process includes seed receiving, cleaning, conditioning, crushing, oil extraction, meal grinding, and storage. Also included is vegetable oil processing including refining, bleaching, dewaxing/winterizing, and deodorization.

The oilseeds used as raw material feedstock are received primarily by trucks, but are also received by railcar. The oilseeds are sampled and analyzed for moisture content, foreign matter and test weight. The oilseeds are weighed and conveyed to large metal tanks for storage prior to processing. Unloading of oilseed trucks is accomplished with bucket elevators and covered conveying systems, under building cover in an open “drive through” area. Railcar unloading is accomplished by a fixed covered conveying system outside.

The oilseeds are removed from the storage bins and cleaned of foreign material prior to conditioning. Screen cleaners are used to remove foreign materials such as sticks, stems, pods, tramp metal, sand and dirt. A Carter Day aspiration system is used to remove the empty seeds and light material from the product stream though a cyclone.

Next, the oilseeds are conveyed to a flaker where smooth cylindrical rolls press the seeds into smooth "flakes" which vary in thickness from approximately 0.010 to 0.020 inches. Flaking allows the oilseed oil cells to be exposed and the oil to be more easily extracted. The flakes are conveyed to the conditioning area where they are put through a stacked cooker and are heated to "condition" them. Physical oil extraction is then performed through the use of expellers. An expeller is a tapered screw press, which removes oil through a mechanical pressing action. All flaking, conditioning, and expeller pressing steps are performed within the Mill building on the plant site.

The expeller cake (containing approximately 15% to 20% vegetable oil) is conveyed to the Solvent Extraction Process. This process consists of washing the oil from the expeller cake with commercial grade n-hexane (a Hazardous Air Pollutant (HAP)) in a countercurrent extractor.

The flakes leaving the extractor contain up to 35 to 40% solvent and must be desolventized before use. Solvent-laden flakes are desolventized in a conventional desolventizer/toaster-dryer/cooler (DTDC), where both contact and noncontact steam are used to evaporate the hexane. In addition, the contact steam "toasts" the flakes, making them more usable for animal feeds. The desolventized and toasted flakes then pass to a cooler, where ambient air is used to reduce the temperature of the flakes. The desolventized flakes are ground for use as meal. Meal is conveyed to fixed roof storage. Meal truck loadout is accomplished under building cover.

The solvent is evaporated from the solvent/oil mixture by a distillation system. The oil is desolventized by exposing the solvent/oil mixture to steam (contact and noncontact). Then the solvent is condensed, separated from the steam condensate, and reused. Residual hexane vapor not condensed is absorbed with a mineral oil scrubber, separated from the mineral oil and steam condensate, and reused in the extraction process. The desolventized oil, called crude solvent vegetable oil, is pumped to a metering tank before being pumped to a large storage tank. All steps of the solvent extraction process are performed within the Solvent Plant Building.

Refining, bleaching, dewaxing/winterizing, and deodorization of vegetable oil is performed within the refinery and dewax refinery buildings. Refining is the neutralization of the free fatty acids in the vegetable oil through use of a caustic solution, bleaching is the color removal from the oil through use of a chilling and filtering process. Deodorization is the final processing step which removes any remaining impurities, odors, and flavors. Byproducts produced in the refinery including soapstock, spent bleaching earth, and deodorizer distillate.

The solvent extraction process is regulated under the federal Maximum Achievable Control Technology (MACT) regulation, 40 CFR 63 Subpart GGGG. Based on the MACT emission limits and Montola's maximum annual processing rate of 219,000 tons of oilseed, Montola can potentially emit 431.5 tons per year (tpy) of Volatile Organic Compound (VOC), of which 380 tpy may be n-hexane. Montola's Title V permit will contain more detailed requirements for monitoring, recordkeeping, and reporting, including requirements under the startup, shutdown, and malfunction plan and any leak detection programs implemented as part of this or other plans for general duty to minimize emissions.

C. Permit History

On April 6, 1997, Permit #2949-00 was issued to SVO Specialty Products, Inc. (SVO) to operate their Oilseed Processing and Refining plant located one mile east on Highway 2 in Culbertson, Montana. The legal description of the location is the SW 1/4 and SE 1/4 of Section 28, Township 28 North, Range 56 East, in Roosevelt County, Montana.

On May 29, 1997, Montola Growers, Inc. requested that Permit #2949-00 be modified to reflect a change in the ownership of the facility from SVO Specialty Products, Inc. to Sheridan Electric Cooperative. The facility operated under the name Montola Growers, Inc. Permit #2949-01 replaced Permit #2949-00.

D. Current Permit Action

On December 26, 2005, the Department of Environmental Quality (Department) received a request to transfer the permit ownership from Sheridan Electric Co-op, Inc. to Sustainable Systems, LLC. On June 15, 2006, the Department received an application for the replacement of the existing 300-ton per day (tpd) oilseed extraction equipment with a new 600-tpd extractor, DTDC, and distillation system. The facility will become a major source under the Prevention of Significant Deterioration (PSD) program, because the Potential to Emit (PTE) exceeds 250 tpy of VOC. The application was deemed complete on August 17, 2006. The current permit action will also update the permit to reflect the current permit language and rule references used by the Department.

Comments received from the applicant on the Preliminary Determination included the request to revise the permitted airflow from the two new DTDC cyclones from 6,000 CFM to 7,100 CFM, and to permit individual stack tests, rather than combined. Since the total revised new/de-bottlenecked PTE PM_{10} remains below the significance level of 15 tpy, the Department agreed to this request. Permit #**2949-02** replaces Permit #2949-01.

E. Additional Information

Additional information, such as applicable rules and regulations, Best Available Control Technology (BACT)/Reasonably Available Control Technology (RACT) determinations, air quality impacts, and environmental assessments, is included in the analysis associated with each change to the permit.

II. Applicable Rules and Regulations

The following are partial explanations of some applicable rules and regulations that apply to the facility. The complete rules are stated in the Administrative Rules of Montana (ARM) and are available, upon request, from the Department. Upon request, the Department will provide references for location of complete copies of all applicable rules and regulations or copies where appropriate.

A. ARM 17.8, Subchapter 1 – General Provisions, including but not limited to:

1. ARM 17.8.101 Definitions. This rule includes a list of applicable definitions used in this chapter, unless indicated otherwise in a specific subchapter.

2. ARM 17.8.105 Testing Requirements. Any person or persons responsible for the emission of any air contaminant into the outdoor atmosphere shall, upon written request of the Department, provide the facilities and necessary equipment (including instruments and sensing devices) and shall conduct tests, emission or ambient, for such periods of time as may be necessary using methods approved by the Department.

3. ARM 17.8.106 Source Testing Protocol. The requirements of this rule apply to any emission source testing conducted by the Department, any source or other entity as required by any rule in this chapter, or any permit or order issued pursuant to this chapter, or the provisions of the Clean Air Act of Montana, 75-2-101, *et seq*., Montana Code Annotated (MCA).

   Montola shall comply with the requirements contained in the Montana Source Test Protocol and Procedures Manual, including, but not limited to, using the proper test methods and supplying the required reports. A copy of the Montana Source Test Protocol and Procedures Manual is available from the Department upon request.

4. ARM 17.8.110 Malfunctions. (2) The Department must be notified promptly by telephone whenever a malfunction occurs that can be expected to create emissions in excess of any applicable emission limitation or to continue for a period greater than four hours.

5. ARM 17.8.111 Circumvention. (1) No person shall cause or permit the installation or use of any device or any means that, without resulting in reduction of the total amount of air contaminant emitted, conceals or dilutes an emission of air contaminant that would otherwise violate an air pollution control regulation. (2) No equipment that may produce emissions shall be operated or maintained in such a manner as to create a public nuisance.

B. ARM 17.8, Subchapter 2 – Ambient Air Quality, including, but not limited to the following:

1. ARM 17.8.204 Ambient Air Monitoring
2. ARM 17.8.210 Ambient Air Quality Standards for Sulfur Dioxide
3. ARM 17.8.211 Ambient Air Quality Standards for Nitrogen Dioxide
4. ARM 17.8.212 Ambient Air Quality Standards for Carbon Monoxide
5. ARM 17.8.213 Ambient Air Quality Standard for Ozone
6. ARM 17.8.214 Ambient Air Quality Standard for Hydrogen Sulfide
7. ARM 17.8.220 Ambient Air Quality Standard for Settled Particulate Matter
8. ARM 17.8.221 Ambient Air Quality Standard for Visibility
9. ARM 17.8.222 Ambient Air Quality Standard for Lead
10. ARM 17.8.223 Ambient Air Quality Standard for PM_{10}

Montola must maintain compliance with the applicable ambient air quality standards.

C. ARM 17.8, Subchapter 3 – Emission Standards, including, but not limited to:

1. ARM 17.8.304 Visible Air Contaminants. This rule requires that no person may cause or authorize emissions to be discharged into the outdoor atmosphere from any source installed after November 23, 1968, that exhibit an opacity of 20% or greater averaged over six consecutive minutes.

   This rule also requires that no person may cause or authorize emissions to be discharged into the atmosphere from any source installed before November 23, 1968, that exhibit an opacity of 40% or greater averaged over six consecutive minutes.

2. ARM 17.8.308 Particulate Matter, Airborne. (1) This rule requires an opacity limitation of 20% for all fugitive emission sources and reasonable precautions be taken to control emissions of airborne particulate matter (PM). (2) Under this rule, Montola shall not cause or authorize the use of any street, road, or parking lot without taking reasonable precautions to control emissions of airborne particulate matter.

3. ARM 17.8.309 Particulate Matter, Fuel Burning Equipment. This rule requires that no person shall cause, allow, or permit to be discharged into the atmosphere particulate matter caused by the combustion of fuel in excess of the amount determined by this rule.

4. ARM 17.8.310 Particulate Matter, Industrial Process. This rule requires that no person shall cause, allow, or permit to be discharged into the atmosphere particulate matter in excess of the amount set forth in this rule.

5. ARM 17.8.322 Sulfur Oxide Emissions--Sulfur in Fuel. (4) Commencing July 1, 1972, no person shall burn liquid or solid fuels containing sulfur in excess of 1 pound of sulfur per million Btu fired. (5) Commencing July 1, 1971, no person shall burn any gaseous fuel containing sulfur compounds in excess of 50 grains per 100 cubic feet of gaseous fuel, calculated as hydrogen sulfide at standard conditions. The propane burned in the boilers contains less than 0.0123% sulfur; therefore this facility will be in compliance with this rule.

6. ARM 17.8.324 Hydrocarbon Emissions--Petroleum Products. (3) No person shall load or permit the loading of gasoline into any stationary tank with a capacity of 250 gallons or more from any tank truck or trailer, except through a permanent submerged fill pipe, unless such tank is equipped with a vapor loss control device as described in (1) of this rule.

7. ARM 17.8.340 Standard of Performance for New Stationary Sources and Emission Guidelines for Existing Sources. This rule incorporates, by reference, 40 Code of Federal Regulations (CFR) 60, Standards of Performance for New Stationary Sources (NSPS). This facility is not an NSPS affected source because it does not meet the definition of any NSPS subpart defined in 40 CFR 60.

   - 40 CFR 60, Subpart Dc - Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units applies to all affected facilities constructed, modified, or reconstructed after June 9, 1989 and that has a maximum design heat input capacity of 100 million Btu/hr (MMBtu/hr) or less, but greater than 10 MMBtu/hr.

     - The Eclipse and Dixon boilers used at this facility were manufactured prior to June 9, 1989; therefore, 40 CFR 60, Subpart Dc does not apply to these sources.

     - The Hurst 21 MMBtu/hr propane boiler was constructed in 2002 and therefore is subject to 40 CFR 60 Subpart Dc. However, since the boiler fires only propane, was constructed before February 28, 2005, and is less than 30 MMBtu/hr, there are no applicable NSPS requirements for this boiler other than notification and recordkeeping.

   - Subpart DD - Standards of Performance for Grain Elevators applies to all affected facilities constructed, modified, or reconstructed after August 3, 1978, that have the capacity to store 1 million bushels of grain. Although the facility has the ability to store 1.2 million bushels, none of the specified equipment was modified since 1978 and none of the oilseed stored at Montola meets the definition of "grain." Therefore, 40 CFR Part 60, Subpart DD does not apply to this facility.

   - Subpart K, Ka, and Kb - Standards of Performance for Storage Vessels for Petroleum Liquids applies to all affected facilities constructed, modified, or reconstructed after June 11, 1973, that have the potential to store more than 40,000 gallons of petroleum liquids. This facility does not store petroleum liquid and volatile organic liquids in excess of 40,000 gallons and/or with vapor pressure in excess of 0.75 psia; therefore 40 CFR Part 60, Subparts K, Ka, and Kb do not apply to this facility.

8. ARM 17.8.342 Emission Standards for Hazardous Air Pollutants for Source Categories. The facility is subject to the following Maximum Achievable Control Technology (MACT) provisions of 40 CFR Part 63, National Emission Standards for Hazardous Air Pollutants for Source Categories (NESHAPs): Subpart GGGG- Solvent Extraction for Vegetable Oil Production, promulgated April 12, 2001. The original compliance date was April 12, 2004. This permit allows Montola to operate a hexane solvent oilseed extraction system in conformance with 40 CFR 63 Subpart GGGG.

   Montola was found to not be subject to Subpart DDDDD – Industrial, commercial, and institutional boilers, since Montola did not commence construction of a boiler after January 13, 2003.

D. ARM 17.8, Subchapter 4 – Stack Height and Dispersion Techniques, including, but not limited to:

   1. ARM 17.8.401 Definitions. This rule includes a list of definitions used in this chapter, unless indicated otherwise in a specific subchapter.

   2. ARM 17.8.402 Requirements. Montola must demonstrate compliance with the ambient air quality standards with a stack height that does not exceed Good Engineering Practices (GEP). The proposed height of any new or altered stack must be below the allowable 65-meter GEP stack height.

E. ARM 17.8, Subchapter 5 – Air Quality Permit Application, Operation, and Open Burning Fees, including, but not limited to:

   1. ARM 17.8.504 Air Quality Permit Application Fees. This rule requires that an applicant submit an air quality permit application fee concurrent with the submittal of an air quality permit application. A permit application is incomplete until the proper application fee is paid to the Department. Montola submitted the appropriate permit application fee for the current permit action.

   2. ARM 17.8.505 When Permit Required--Exclusions. An annual air quality operation fee must, as a condition of continued operation, be submitted to the Department by each source of air contaminants holding an air quality permit (excluding an open burning permit) issued by the Department. The air quality operation fee is based on the actual or estimated actual amount of air pollutants emitted during the previous calendar year.

      An air quality operation fee is separate and distinct from an air quality permit application fee. The annual assessment and collection of the air quality operation fee, described above, shall take place on a calendar-year basis. The Department may insert into any final permit issued after the effective date of these rules, such conditions as may be necessary to require the payment of an air quality operation fee on a calendar-year basis, including provisions that prorate the required fee amount.

F. ARM 17.8, Subchapter 7 – Permit, Construction, and Operation of Air Contaminant Sources, including, but not limited to:

   1. ARM 17.8.740 Definitions. This rule is a list of applicable definitions used in this chapter, unless indicated otherwise in a specific subchapter.

2. ARM 17.8.743 Montana Air Quality Permits--When Required. This rule requires a facility to obtain an air quality permit or permit alteration to construct, alter, or use any air contaminant sources having the PTE greater than 25 tpy of any pollutant. Montola has the PTE more than 25 tpy of VOC, PM and NO_x; therefore, an air quality permit is required.

3. ARM 17.8.744 Montana Air Quality Permits--General Exclusions. This rule identifies the activities that are not subject to the Montana Air Quality Permit Program.

4. ARM 17.8.745 Montana Air Quality Permits--Exclusion for De Minimis Changes. This rule identifies the de minimis changes at permitted facilities that are not subject to the Montana Air Quality Permit Program.

5. ARM 17.8.748 New or Modified Emitting Units--Permit Application Requirements. (1) This rule requires that a permit application be submitted prior to installation, alteration, or use of a source. Montola submitted a permit application on June 15, 2006. A revised permit application was received on August 17, 2006. (7) This rule requires that the applicant notify the public by means of legal publication in a newspaper of general circulation in the area affected by the application for a permit. Montola submitted an Affidavit of Publication for the June 15, 2006, issue of *the Searchlight*, a weekly newspaper published in Culbertson, as proof of compliance with the public notice requirements.

6. ARM 17.8.749 Conditions for Issuance or Denial of Permit. This rule requires that the permits issued by the Department must authorize the construction and operation of the facility or emitting unit subject to the conditions in the permit and the requirements of this subchapter. This rule also requires that the permit must contain any conditions necessary to assure compliance with the Federal Clean Air Act (FCAA), the Clean Air Act of Montana, and rules adopted under those acts.

7. ARM 17.8.752 Emission Control Requirements. This rule requires a source to install the maximum air pollution control capability that is technically practicable and economically feasible, except that BACT shall be utilized. The required BACT analysis is included in Section III of this permit analysis.

8. ARM 17.8.755 Inspection of Permit. This rule requires that air quality permits shall be made available for inspection by the Department at the location of the source.

9. ARM 17.8.756 Compliance with Other Requirements. This rule states that nothing in the permit shall be construed as relieving Montola of the responsibility for complying with any applicable federal or Montana statute, rule, or standard, except as specifically provided in ARM 17.8.740, *et seq*.

10. ARM 17.8.759 Review of Permit Applications. This rule describes the Department's responsibilities for processing permit applications and making permit decisions on those permit applications that do not require the preparation of an environmental impact statement.

11. ARM 17.8.762 Duration of Permit. An air quality permit shall be valid until revoked or modified, as provided in this subchapter, except that a permit issued prior to construction of a new or altered source may contain a condition providing that the permit will expire unless construction is commenced within the time specified in the permit, which in no event may be less than one year after the permit is issued.

12. ARM 17.8.763 Revocation of Permit. An air quality permit may be revoked upon written request of the permittee, or for violations of any requirement of the Clean Air Act of Montana, rules adopted under the Clean Air Act of Montana, the FCAA, rules adopted under the FCAA, or any applicable requirement contained in the Montana State Implementation Plan (SIP).

13. ARM 17.8.764 Administrative Amendment to Permit. An air quality permit may be amended for changes in any applicable rules and standards adopted by the Board of Environmental Review (Board) or changed conditions of operation at a source or stack that do not result in an increase of emissions as a result of those changed conditions. The owner or operator of a facility may not increase the facility's emissions beyond permit limits unless the increase meets the criteria in ARM 17.8.745 for a de minimis change not requiring a permit, or unless the owner or operator applies for and receives another permit in accordance with ARM 17.8.748, ARM 17.8.749, ARM 17.8.752, ARM 17.8.755, and ARM 17.8.756, and with all applicable requirements in ARM Title 17, Chapter 8, Subchapters 8, 9, and 10.

14. ARM 17.8.765 Transfer of Permit. This rule states that an air quality permit may be transferred from one person to another if written notice of Intent to Transfer, including the names of the transferor and the transferee, is sent to the Department.

G. ARM 17.8, Subchapter 8 – Prevention of Significant Deterioration of Air Quality, including, but not limited to:

1. ARM 17.8.801 Definitions. This rule is a list of applicable definitions used in this subchapter.

2. ARM 17.8.818 Review of Major Stationary Sources and Major Modifications--Source Applicability and Exemptions. The requirements contained in ARM 17.8.819 through ARM 17.8.827 shall apply to any major stationary source and any major modification, with respect to each pollutant subject to regulation under the FCAA that it would emit, except as this subchapter would otherwise allow.

   Montola is a major stationary source since the facility's PTE is above 250 tpy of VOC (excluding fugitive emissions).

H. ARM 17.8, Subchapter 12 – Operating Permit Program Applicability, including, but not limited to:

1. ARM 17.8.1201 Definitions. (23) Major Source under Section 7412 of the FCAA is defined as any source having:

   a. PTE > 100 tpy of any pollutant;

   b. PTE > 10 tpy of any one HAP, PTE > 25 tpy of a combination of all HAPs, or lesser quantity as the Department may establish by rule; or

   c. PTE > 70 tpy of PM_{10} in a serious PM_{10} nonattainment area.

2. ARM 17.8.1204 Air Quality Operating Permit Program. (1) Title V of the FCAA Amendments of 1990 requires that all sources, as defined in ARM 17.8.1204(1), obtain a Title V Operating Permit. Montola has a Title V operating permit due to the potential to emit over 100 tpy of VOCs and over 10 tpy of n-hexane, a HAP. In reviewing and issuing Air Quality Permit #2949-02 for Montola, the following conclusions were made:

a. The facility's PTE is more than 100 tpy for VOC.

b. The facility's PTE is more than 10 tpy for any one HAP and more than 25 tpy for all HAPs.

c. This source is not located in a serious PM_{10} nonattainment area.

d. This facility is subject to a NSPS (40 CFR 60 Subpart Dc).

e. This facility is subject to a NESHAP standard (40 CFR 63 Subpart GGGG).

f. This source is not a Title IV affected source, nor a solid waste combustion unit.

g. This source is not an EPA-designated Title V source.

Based on these facts, the Department determined that the Montola facility is a major source of emissions as defined under Title V.

III. BACT Determination

A BACT determination is required for each new or altered source. Montola shall install on the new or altered source the maximum air pollution control capability that is technically practicable and economically feasible, except that BACT shall be utilized.

A. PM/PM_{10} Emissions

Montola proposes to install two new high efficiency cyclones as part of the DTDC process, to reduce the amount of product lost during conveyance of extracted flakes mixed with hexane through the dryer and cooler decks. The total air flow through the two cyclones combined will not exceed 7,100 dry standard cubic feet per minute (dscfm) at 0.026 grains per dry standard cubic feet (gr/dscf), which will give a combined potential to emit of 6.93 tpy PM. All PM is assumed to be PM_{10} for this evaluation.

i. PM/PM_{10} Options Identification

The following particulate control devices were evaluated for collecting the 6.93 tpy PM/PM_{10}:

- Fabric filter
- Scrubbers (venturi or impingement)
- Cyclone

ii. PM/PM_{10} Elimination of Technically Infeasible Options

Fabric filters were determined to be technically infeasible since the exhaust contains sufficient moisture to cause condensation in the fabric filter. The condensation would bind the filters and cause the system to fail.

iii. PM/PM_{10} Rank Remaining Options by Effectiveness

The technically feasible options were ranked by control effectiveness:

Control Technology	Typical Control Efficiencies	Comments
Scrubbers	90%	Venturi and Impingement scrubbers.
Cyclones • High Efficiency • Medium Efficiency • Low Efficiency	 80-95% 50-85% 10-50%	See below notes. BACT analysis estimated that an add-on cyclone would be considered low efficiency with 30% removal.

As part of the process, the proposed DTDC cyclones remove the vast majority of PM as product. Therefore, the BACT analysis for add-on control after the DTDC cyclones projected that a cyclone would be considered low efficiency with approximately 30% removal, since it will be removing finer particulate which is more difficult to remove.

iv. PM/PM_{10} Evaluate Cost for Technically Feasible Controls

The annualized cost estimates for the two technically feasible controls were based on the Air Compliance Advisor Air Pollution Control Technology Evaluation Model version 7.5.

Control Technology	Assumed Efficiency	Tons controlled (tpy)	Annualized Cost ($/yr)	Cost Effectiveness ($/ton)
Scrubber (venturi and impingement)	90%	6.24	$140,000	$22,436
Low Efficiency Cyclone	30%	2.08	$19,000	$9,135

The cost effectiveness for scrubbers is over $20,000 per ton and for cyclones is over $9,000 per ton. This cost exceeds what the Department typically considers as reasonable under BACT.

v. PM/PM_{10} Select BACT

Montola proposes good operating practices as PM/PM_{10} BACT for the DTDC Deck cyclones, which is consistent with other BACT determinations made for similar processes. PM/PM_{10} will be limited to 0.79 lb/hr for each cyclone. This equates to 6.93 tpy combined, based on a total of 7,100 dscfm at 0.026 gr/dscf.

B. VOC/HAP Emissions

Montola proposes to install a new 600-tpd oilseed extraction system, which includes a new extractor, DTDC deck, and distillation system. The extraction system uses a solvent (assumed 100% VOC, of which up to 88% is commercial grade n-hexane, a HAP) to extract oil from the conditioned oilseeds. The solvent is emitted from various points throughout the process:

- Absorber system - expected to emit 5% of the total VOC/HAP emissions
- DTDC - expected to emit 45% of the total VOC/HAP emissions
- Other nonpoint sources - expected to emit 50% of the total VOC/HAP emissions

Since Montola is a major HAP source, the facility is subject to the 2001 MACT standard regulating Solvent Extraction for Vegetable Oil Production. This MACT standard represents the maximum achievable control technology for the top 12% of the vegetable oil extraction facilities at the time the rule was promulgated, which can be considered equivalent to BACT. In addition, Montola reviewed control technology used for similar processes to show that the MACT requirements are still equivalent to BACT.

i. Options Identification

The following VOC/HAP control devices were evaluated:

- Replace n-hexane with iso-hexane, which is not a HAP (but is a VOC)
- Incineration (catalytic, recuperative thermal, regenerative thermal, direct oxidation)
- Carbon Adsorption
- Condensation & Distillation
- Mineral Oil Absorber
- Compliance with MACT

ii. Elimination of Technically Infeasible Options

The following options were eliminated as technically infeasible:

- The proposed solvent extraction system was designed for use with n-hexane. Replacing commercial n-hexane with iso-hexane (which is not a HAP) will be explored in the future; however, it would need to be mixed with commercial hexane in a concentration up to 50% to achieve acceptable product quality and solvent recovery efficiencies. In addition, there are certain process parameters that may be affected. Lastly, this will not reduce VOC emissions – the same amount of material would be emitted. Since isohexane is not a HAP, the proportion of n-hexane reduced would reduce the amount of HAP emissions.

- Incineration is not safe at an oil extraction plant due to explosion hazards.

- Carbon adsorption is also not safe due to process explosion hazards, and also could overheat during regeneration.

- Condensation/distillation is already part of the process. Add-on condensation systems are recommended for emission streams between 5,000 – 10,000 ppm. The end-of-pipe emission streams for this project are all less than 5,000 ppm.

The remainder of the options are considered technically feasible.

iii. Evaluate Remaining Options & Select BACT

Montola proposes to install condensation and distillation as part of the process, in order to recover and reuse hexane from the desolventizing steps. This equipment is considered to be an integral part of the process, and Montola did not evaluate it further as an "add on" control technology.

Montola proposes to install a mineral oil absorber (scrubber) to recover and reuse hexane as a final polishing step. This equipment is considered to be an integral part of the process, and Montola did not evaluate it further as an "add on" control technology.

Lastly, Montola proposes to conduct good operating practices in order to comply with the 2001 MACT requirements. Discussions with Montola indicate that this would include a leak prevention program. At least two facilities in the RBLC (Archer Daniels Midland and Cargill, Inc.) had leak detection and repair programs identified as part of their VOC control strategy.

Montola's BACT determination of no additional control other than Good Operating Practices, and operating in conformance with MACT, is consistent with other BACT determinations made, according to a review of the RBLC.

IV. Emission Inventory

Potential Emissions (Tons/year)					
Source	**PM_{10}**	**NO_x**	**VOC**	**CO**	**SO_x**
Eclipse Boiler - Propane (500 HP)	0.6	19.1	0.5	3.2	0.0
Hurst Boiler – Propane (500 HP)	0.6	19.1	0.5	3.2	0.0
Dixon Dowtherm Boiler – Propane (125 HP)	0.0	0.4	0.0	0.1	0.0
Solvent Oilseed Extraction System (Extractor, DTDC, Distillation & Misc Equipm.)	6.9		431.5		
Cooling Towers	0.0		*		
Railcar and Truck Seed Receiving (f*ugitive*)	*4.1*				
Seed Storage Bin Loading	0.3				
Seed Transfer (Bucket Elevators & Conveyors)	1.5				
Seed Cleaning	0.8				
Crystallizer/Precoat Tank Vent	0.4				
Meal Grinding Cyclone Discharge	6.1				
Meal Loadout (*fugitive*)	*4.8*				
Haul Roads (*fugitive*)	*2.5*				
Total	**28.6**				
Stack	17.2	**38.6**	**432.5**	**6.5**	**0.0**
Fugitive	*11.4*				

*Note: VOC Emissions from the cooling towers are included with the overall hexane emissions.

1980 Eclipse Boiler (Backup) - Propane (500 HP)
2002 Hurst Boiler - Propane (500 HP)

Maximum Fuel Combustion: 21 MMBTU/hour (each unit)
Heat Content: 91500 BTU/gallon propane

PM/PM10 Emissions:
Emission Factor: 0.6 lb/1000 gal {AP-42, Table 1.5-1}
Calculations: (21 MMBTU/hr) / (91500 BTU/gal) * (0.6 lbs/1000 gal)* 1000 = 0.1377 lb/hr
0.1377 lb/hr * 8760 * 0.0005 = 0.6 tons/year
All Particulate Matter emissions can be assumed to be less than 10 microns in diameter (AP-42 Table 1.4-1, 10/96).

NOx Emissions:
Emission Factor: 19 lb/1000 gal {AP-42, Table 1.5-1}
Calculations: (21 MMBTU/hr) / (91500 BTU/gal) * (19.0 lbs/1000 gal)* 1000 = 4.36 lb/hr
4.36 lb/hr * 8760 * 0.0005 = 19.1 tons/year

VOC Emissions:
Emission Factor: 0.5 lb/1000 gal {AP-42, Table 1.5-1}
Calculations: (21 MMBTU/hr) / (91500 BTU/gal) * (0.5 lb/1000 gal) * 1000 = 0.1148 lb/hr
0.1148 lb/hr * 8760 * 0.0005 = 0.5 tons/year

CO Emissions:
Emission Factor: 3.2 lb/1000 gal {AP-42, Table 1.5-1}
Calculations: (21 MMBTU/hr) / (91500 BTU/gal) * (3.2 lb/1000 gal) * 1000 = 0.7344 lb/hr
0.7344 lb/hr * 8760 * 0.0005 = 3.2 tons/year

SOx Emissions:
Emission Factor: 0.018 lb/1000 gal {AP-42, Table 1.5-1}
Calculations: (21 MMBTU/hr) / (91500 BTU/gal) * (0.018 lb/1000 gal)* 1000 = 0.0041 lb/hr
0.0041 lb/hr * 8760 * 0.0005 = 0.02 tons/year

1974 Dixon Boiler – Propane (125 HP)

Maximum Fuel Combustion: 0.6 MMBTU/hour
Heat Content: 91500 BTU/gallon propane

PM/PM10 Emissions:
Emission Factor: 0.4 lb/1000 gal {AP-42, Table 1.5-1}
Calculations: (0.6 MMBTU/hr) / (91500 BTU/gal) * (0.4 lbs/1000 gal) * 1000 = 0.0026 lb/hr
0.0026 lb/hr * 8760 * 0.0005 = 0.01 tons/year
All Particulate Matter emissions can be assumed to be less than 10 microns in diameter (AP-42 Table 1.4-1, 10/96).

NOx Emissions:

Emission Factor:	14	lb/1000 gal	{AP-42, Table 1.5-1}
Calculations:		(0.6 MMBTU/hr) / (91500 BTU/gal) * (14.0 lb/1000 gal) * 1000 = 0.0918 lb/hr	
		0.0918 lb/hr * 8760 * 0.0005 = 0.40 tons/year	

VOC Emissions:

Emission Factor:	0.5	lb/1000 gal	(AP-42, Table 1.5-1)
Calculations:		(0.6 MMBTU/hr) / (91500 BTU/gal) * (0.5 lb/1000 gal) * 1000 = 0.0033 lb/hr	
		0.0033 lb/hr * 8760 * 0.0005 = 0.014 tons/year	

CO Emissions:

Emission Factor:	1.9	lb/1000 gal	{AP-42, Table 1.5-1}
Calculations:		(0.6 MMBTU/hr) / (91500 BTU/gal) * (1.9 lb/1000 gal)* 1000 = 0.0125 lb/hr	
		0.0125 lb/hr * 8760 * 0.0005 = 0.05 tons/year	

SOx Emissions:

Emission Factor:	0.018	lb/1000 gal	{AP-42, Table 1.5-1}
Calculations:		(0.6 MMBTU/hr) / (91500 BTU/gal) * (0.018 lbs/1000 gal)* 1000 = 0.0001 lb/hr	
		0.0001 lb/hr * 8760 * 0.0005 = 0.00 tons/year	

Solvent Oilseed Extraction System – VOC Emissions

VOC Emissions from the Solvent Extraction System include the following equipment/processes:

Point Sources: Mineral Oil Absorption Exhaust Discharge

Fugitive Sources: Solvent Metering Tanks #3 & 4, Bad Oil Tank #8, Hexane Storage Tank, Hexane Truck Unloading, Hexane Purge Fan, Wastewater Sump, Pond

Maximum Amount of Solvent Used:	0.7	gal/ton of raw oilseed processed (MACT 40 CFR 63 Subpart GGGG)
Maximum Oilseed Processed:	219,000	tons/yr (unrestricted @ 600 tons per day)
Commercial Hexane:	5.63	lb/gal

Calculations:
VOC Emissions:
219,000 ton/yr * 0.7 gal/ton * 5.63 lb/gal = 863,079 lb/yr VOC
863,079 lb/yr * 0.0005 = 431.5 ton/yr VOC

HAP Emissions:
431.5 tpy VOC * 88% n-hexane = 379.8 tpy n-hexane

Solvent Oilseed Extraction System – PM Emissions

Point Sources: DTDC Cyclones (two)
Combined air flow: 7,100 dscfm
Emission rate: 0.026 gr/dscf {RBLC and Manufacturer Info}

Calculations:
PM/PM10 Emissions: (7,100 dscfm * 0.026 gr/dscf * 60 min/hr)/7,000 gr/lb = 1.58 lb/hr PM/PM_{10}
1.58 lb/hr * 8760 hr/yr / 2000 lb/ton = 6.93 tpy PM/PM_{10}

Cooling Towers

Solvent Plant Cooling Tower

Cooling Water Recirculation Rate:	1000 gal/min	
Emission Factor:	0.002% drift rate	{Manufacturer's Estimate}
Total Dissolved Solids (TDS)	551 ppm	{Applicant water sample analysis}

Calculations:
PM/PM10 Emissions: 1000 gal/min x 60 min/hr x 8.34 lb H_2O/gal x 0.002% drift = 10.0 lb H_2O/hr
10.0 lb H_2O drift/hr x 551 lb PM/MM lbs H_2O = 0.0055 lb/hr
0.0055 lb/hr x 8760 hr/yr x 1 ton/2000 lb = 0.024 ton/yr PM_{10}

Refinery Cooling Tower

Cooling Water Recirculation Rate: 800 gal/min
Emission Factor: 0.002% drift rate {Manufacturer's Estimate}
Total Dissolved Solids (TDS) 551 ppm {Applicant water sample analysis}

Calculations:
PM/PM10 Emissions: 800 gal/min x 60 min/hr x 8.34 lb H_2O/gal x 0.002% drift = 8.0 lb H_2O/hr
8.0 lb H_2O drift/hr x 551 lb PM/MM lbs H_2O = 0.0044 lb/hr
0.0044 lb/hr x 8760 hr/yr x 1 ton/2000 lb = 0.019 ton/yr PM_{10}

VOC Emissions
VOC Emissions from the cooling towers are included with the overall hexane emissions.

Railcar and Truck Oilseed Unloading (*Fugitive*)

Tons of Oilseed Unloaded: 219,000 ton/yr

PM Emissions
Emission Factor: 0.15 lb/ton {AP-42 Section 9.11.1-1 (11/95)}
Control Efficiency: 0.0%
Calculations: 0.15 lb/ton * 219,000 ton/yr = 32,850 lb/yr
32,850 lb/yr * 0.0005 = 16.43 tpy PM

PM_{10} Emissions
Emission Factor: 0.0375 lb/ton {PM_{10} assumed @ 25% of PM - AP-42 Section 9.9.1-1 (3/03)}
Control Efficiency: 0.0%
Calculations 0.0375 lb/ton * 219,000 ton/yr = 8,212.5 lb/yr
8,212.5 lb/yr * 0.0005 = 4.11 ton/yr PM_{10}

Oilseed Storage Bin Loading

Tons Loaded: 219,000 ton/yr
Emission Factor Adjustment 60% reduction due to oily nature of seed {AP-42 Section 9.9.1 Background Doc page 2-44}
Number of Bins: 12 Storage Bins

PM Emissions
Emission Factor: 0.025 lb/ton {AP-42 Section 9.9.1 (5/03)}
Control Efficiency: 0
Calculations 0.025 lb/ton * 219,000 = 5,475 lb/yr
5,475 lb/yr * (1-.60) = 2,190 lb/yr
2,190 lb/yr * 0.0005 = 1.10 ton/yr

PM_{10} Emissions
Emission Factor: 0.0063 lb/ton {AP-42 Section 9.9.1 (5/03)}
Control Efficiency: 0
Calculations 0.0063 lb/ton * 219,000 tons/year = 1380 lb/yr
1,380 lb/yr * (1-.60) = 552 lb/yr
552 lb/yr * 0.0005 = 0.28 ton/yr

Seed Transfer (Bucket Elevators & Conveying Systems)

Tons Unloaded: 219,000 ton/yr
Emission Factor Adjustment 60% reduction due to oily nature of seed {AP-42 Section 9.9.1 Background Doc page 2-44}
PM Emissions
Emission Factor: 0.061 lb/ton {AP-42 Section 9.9.1 (3/03)}
Calculations 0.061 lb/ton * 219,000 = 13,359 lb/yr
13,359 lb/yr *(1-.60) = 5,344 lb/yr
5,344 lb/yr * 0.0005 = 2.67 ton/yr

PM_{10} Emissions
Emission Factor: 0.034 lb/ton {AP-42 Section 9.9.1 (3/03)}
Calculations 0.034 lb/ton * 219000 tons/yr = 7,446 lb/yr
7,446 lb/yr *(1-.60) = 2,978 lb/yr
2,978 lb/yr * 0.0005 = 1.49 ton/yr

Seed Cleaning

Tons of Seed Cleaned: 219,000 ton/yr
Control Efficiency: 0.0% cyclone considered part of the process
Emission Factor Adjustment 60% reduction due to oily nature of seed {AP-42 Section 9.9.1 Background Doc page 2-44}

PM Emissions
Emission Factor: 0.075 lb/ton {AP-42 Section 9.9.1 (5/03)}
Calculations: 0.075 lb/ton * 219,000 ton/yr = 16,425 lb/yr
16,425 lb/yr *(1-.60) = 6,570 lb/yr
6,570 lb/yr * 0.0005 = 3.29 ton/yr

PM_{10} Emissions
Emission Factor: 0.019 lb/ton
Calculations: 0.019 lb/ton * 219000 ton/yr = 4,161 lb/yr
4,161 lb/yr *(1-.60) = 1,664 lb/yr
1,664 lb/yr * 0.0005 = 0.83 ton/yr

Meal Grinding Cyclone Discharge

Tons of Oilseed Processed: 219,000 tpy raw oilseed processed
Tons of Meal Processed: 142,350 tpy meal processed {applicant estimate that 65% of oilseed is meal}

PM Emissions
Emission Factor: 0.34 lb/ton {AP-42 Section 9.11.1-1 (11/95)}
Control Efficiency: 0.0%
Calculations: 0.34 lb/ton * 142,350 ton/yr = 48,399 lb/yr
48,399 lb/yr * 0.0005 = 24.2 tpy PM

PM_{10} Emissions
Emission Factor: 0.085 lb/ton {PM_{10} assumed at 25% of PM - AP-42 Section 9.9.1-1 (3/03)}
Control Efficiency: 0.0%
Calculations 0.085 lb/ton * 142,350 ton/yr = 12,100 lb/yr
12,100 lb/yr * 0.0005 = 6.05 ton/yr PM_{10}

Meal Loadout (*Fugitive)*

Tons of Oilseed Processed: 219,000 tpy raw oilseed processed
Tons of Meal Processed: 142,350 tpy meal processed {applicant estimate that 65% of oilseed is meal}

PM Emissions
Emission Factor: 0.27 lb/ton {AP-42 Section 9.11.1 (11/95)}
Control Efficiency: 0.0%
Calculations: 0.27 lb/ton * 142,350 = 38,434.5 lb/yr
38,434.5 lb/yr * 0.0005 = 19.22 ton/yr

PM_{10} Emissions
Emission Factor: 0.0675 lb/ton
Control Efficiency: 0.0%
Calculations 0.0675 lb/ton * 142,350 ton/yr = 9,608.6 lb/yr
9,608.6 lb/yr * 0.0005 = 4.80 ton/yr

Crystallizer/Precoat Tank Vent

Tons Processed: 330 ton/yr

PM Emissions
Emission Factor: 10 lb/ton {Visual estimate from applicant}
Calculations 10.0 lb/ton * 330 ton/day * 0.0005 = 1.65 ton/yr

PM-10 Emissions
Emission Factor: 2.5 lb/ton {Based on PM10 @ 25% of PM}
Calculations 2.5 lb/ton * 330 ton/yr * 0.0005 = 0.41 ton/yr

Haul Roads (*fugitive*)

Vehicle miles traveled: 2500 VMT {based on previous permit information}
Control Efficiency: 50%

PM Emission Factor: 13.9 lb/VMT {AP-42, Section 13.2.2, Eq 1a}
13.9 lb/VMT * 2500.0 VMT/year * 50% = 17,375 lb/year
17,375 lb/year * 0.0005 ton/lb = 8.69 tons/year

PM-10 Emission Factor: 3.95 lb/VMT {AP-42, Section 13.2.2, Eq 1a}
3.95 lb/VMT * 2500.0 VMT/year * 50% = 4938 lbs/year
4938 lbs/year * 0.0005 ton/lb = 2.47 tons/year

V. Existing Air Quality

The Montola facility is located in the SW 1/4 and SE 1/4 of Section 28, Township 28 North, Range 56 East, in Roosevelt County, Montana. Roosevelt County is unclassifiable/attainment for the National Ambient Air Quality Standards (NAAQS) for all criteria pollutants.

VI. Ambient Air Impact Analysis

The air quality classification for the Montola facility area is "Unclassifiable or Better than National Standards" (40CFR81.327) for the National Ambient Air Quality Standards (NAAQS) for all criteria pollutants. There are no nonattainment areas within 50 km of the project site. The closest Class I area is the mandatory Medicine Lake Wilderness Area 25 km north of the site and the non-mandatory Fort Peck Indian Reservation 6 miles west of the site. Visibility analysis is not required at non-mandatory Class I areas.

Air Quality Impacts

Installation of the new equipment will re-classify Montola as a major source under PSD rules because it will have a PTE for VOC of 432.5 tpy, of which up to 380 tpy will be n-hexane, a HAP.

Montola's proposed facility-wide potential emissions of other regulated pollutants following the proposed upgrade will be: 38.6 tpy of nitrogen oxides (NO_x), 0.04 tpy of sulfur dioxide (SO_2), 28.6 tpy PM_{10} (of which 17.2 tpy PM_{10} will be stack emissions and the remainder fugitive), and 6.5 tpy of carbon monoxide (CO).

Air Dispersion Modeling

Montola was not required to submit modeling with the permit application. Modeling of VOC emissions is not typically conducted, because there is no acceptable protocol. PM_{10} modeling was not required because the PM_{10} emissions increase from new and debottlenecked point sources is 14.97 tpy, which is less than 15 tpy PSD-significant increase level.

Although the Department does not have air toxics regulations, an ambient evaluation of n-hexane impacts was warranted due to the relatively high emissions of this HAP. Permitted n-hexane emissions are based on the worst-case assumption that 88 percent of the commercial hexane loss is n-hexane. The actual n-hexane concentration of commercial hexane currently used in the industry is 64 to 85 percent. The Department modeled n-hexane emissions as an elevated volume source, using EPA's Industrial Source Complex (ISC3) model.

Long-term exposure to n-hexane was compared to EPA's Reference Concentrations for Chronic inhalation (RfCs). The peak modeled annual n-hexane impact was 188 $\mu g/m^3$, which is less than the RfC for n-hexane of 200 $\mu g/m^3$.

The short-term (1-hour) n-hexane concentration was modeled and compared to the National Institute of Occupational Safety and Health (NIOSH) Reference Exposure Level (REL) for n-hexane of 180 mg/m^3 for an 8-hour exposure. The peak modeled 1-hour n-hexane impact was 4.6 mg/m^3, which is less than the 8-hour NIOSH REL.

Visibility Analysis at Medicine Lake Wilderness Area (VISCREEN)

Montola provided visibility modeling analysis for receptors at the Medicine Lake Wilderness Area, CM Russell National Wildlife Refuge (UL Bend Wilderness), Lostwood Wilderness Area and Theodore Roosevelt National Park (North Unit). Medicine Lake is 25 km from Montola's facility. The other Class I areas are all more than 130 km from the site.

The results of the conservative Level I VISCREEN analysis for Medicine Lake predicted no adverse impact from the project. VISCREEN is the appropriate model for estimating impacts at the Medicine Lake Wilderness Area. Since the conservative Level I VISCREEN analysis showed acceptable impacts at Medicine Lake, impacts at more distant Class I areas are also expected to be acceptable.

VII. Taking or Damaging Implication Analysis

As required by 2-10-105, MCA, the Department conducted a private property taking and damaging assessment and determined there are no taking or damaging implications.

VIII. Environmental Assessment

An environmental assessment, required by the Montana Environmental Policy Act, was performed for this permitting action. A copy is attached.

DEPARTMENT OF ENVIRONMENTAL QUALITY
Permitting and Compliance Division
Air Resources Management Bureau
P.O. Box 200901, Helena, Montana 59620
(406) 444-3490

FINAL ENVIRONMENTAL ASSESSMENT (EA)

Issued To: Montola – a Division of Sustainable Systems, LLC
Hwy 2 East, PO Pox 478
Culbertson, MT 59218

Air Quality Permit Number: 2949-02

Preliminary Determination Issued: September 26, 2006
Department Determination Issued: October 27, 2006
Permit Final: November 14, 2006

1. *Legal Description of Site:* Montola owns and operates an oilseed processing plant located at one mile east, Highway 2, Culbertson, Montana. The legal location of this facility is the SW¼ & SE¼ of Section 28, Township 28 North, Range 56 East, in Roosevelt County, Montana.

2. *Description of Project*: This permitting action transfers the permit ownership from Sheridan Electric Co-op, Inc. to Sustainable Systems, LLC. In addition, this permitting action proposes to allow the replacement of the existing 300-ton per day (tpd) oilseed extraction equipment with a new 600-tpd extractor, desolventizer/toaster-dryer/cooler (DTDC), and distillation system. Montola will become a major source under the Prevention of Significant Deterioration (PSD) program, because the potential emissions exceed 250 tpy of VOC.

3. *Objectives of Project*: The project will allow Montola to expand production from 300-tpd to 600-tpd. In addition, Montola will be able to extract oil remaining in conditioned flakes that would otherwise remain in the meal.

4. *Alternatives Considered*: In addition to the proposed action, the Department also considered the "no action" alternative. The "no action" alternative would deny the issuance of the Montana Air Quality Permit (MAQP) to Montola and would not allow the facility to increase capacity. Under the “no action” alternative, none of the impacts described in this EA would occur.

5. *A Listing of Mitigation, Stipulations, and Other Controls*: A list of enforceable conditions, including a BACT analysis, would be included in Permit #2949-02.

6. *Regulatory Effects on Private Property*: The Department considered alternatives to the conditions imposed in this permit as part of the permit development. The Department determined that the permit conditions would be reasonably necessary to ensure compliance with applicable requirements, would demonstrate compliance with those requirements, and would not unduly restrict private property rights.

7. The following table summarizes the potential physical and biological effects of the proposed project on the human environment. The "no action" alternative was discussed previously.

Potential Physical and Biological Effects							
		Major	Moderate	Minor	None	Unknown	Comments Included
A.	Terrestrial and Aquatic Life and Habitats			X			yes
B.	Water Quality, Quantity, and Distribution			X			yes
C.	Geology and Soil Quality, Stability, and Moisture			X			yes
D.	Vegetation Cover, Quantity, and Quality			X			yes
E.	Aesthetics			X			yes
F.	Air Quality			X			yes
G.	Unique Endangered, Fragile, or Limited Environmental Resource			X			yes
H.	Demands on Environmental Resource of Water, Air, and Energy			X			yes
I.	Historical and Archaeological Sites			X			yes
J.	Cumulative and Secondary Impacts			X			yes

SUMMARY OF COMMENTS ON POTENTIAL PHYSICAL AND BIOLOGICAL EFFECTS: The following comments have been prepared by the Department.

A. Terrestrial and Aquatic Life and Habitats

This permitting action would have a minor effect on terrestrial and aquatic life and habitats, because the proposed project would affect an existing industrial property first constructed in 1959. In addition, minor effects from the increase in production might be seen. The small amount of air impact would correspond to an equally small amount of deposition.

Aquatic life and habitats would realize little impact from the proposed changes to the facility because Montola is not proposing to directly discharge any material to the surface or ground water in the area and the resulting increase in air emissions to any water body would be very minor. There may be some increase in hexane levels in the cooling water pond due to the increase in production capacity.

B. Water Quality, Quantity, and Distribution

This permitting action would have little to no effect on the water quality, water quantity, and distribution because there would be no difference in the discharges to groundwater or surface water associated with this permitting action. There may be some increase in hexane levels in the cooling water pond due to the increase in production capacity. The increase in production capacity is expected to have only a minor impact, if any impact at all, on water.

C. Geology and Soil Quality, Stability, and Moisture

This permitting action would have a minor effect on geology and soil quantity, stability, and moisture, because the proposed project would include the destruction of the existing 4,000 square foot building and reconstruction of a new solvent building.

The increase in production capacity for this project would have a minor effect on the soil stability and moisture, however the air quality permit associated with this project contains limitations to minimize the effect of the emissions (including BACT and emission limitations) on the surrounding environment. Overall, the impacts to the geology and soil quality, stability, and moisture would be minor.

D. Vegetation Cover, Quantity, and Quality

This permitting action would have a minor effect on vegetation cover, quantity, and quality. The proposed project would affect an already existing industrial property. No additional vegetation on the site would be disturbed for the project. The increase in production capacity for this project might have a minor effect on the surrounding vegetation, however the air quality permit associated with this project contains limitations to minimize the effect of the emissions (including BACT and emission limitations) on the surrounding environment. The small amount of air impact would correspond to an equally small amount of deposition. Therefore, any impact to the vegetation cover, quantity, and quality would be minor.

E. Aesthetics

The impacts to the aesthetics of the area from this project would be minor. Although the reconstruction of the Solvent Plant and increase in production would not change the overall appearance of the facility, there could be expected to be a corresponding increase in noise and traffic impacts due to the increased production. Overall, any impacts to the aesthetics would be minor.

F. Air Quality

The air quality impacts from the construction and operation of the proposed modified facility would be minor.

Permit #2949-02 would include conditions limiting emissions of air pollution from the source, including compliance with the MACT standard 40 CFR 63 Subpart GGGG which limits the solvent use, and ultimately VOC and HAP emissions, for oilseed extraction to less than 0.7 gallons solvent per ton of oilseed. Therefore, while the total oilseed throughput has doubled from 300-tpd to 600-tpd, the permitted annual VOC and HAP emissions are less than the amount allowed in the previous permit issued to the facility in 1997.

In addition, the Department determined, based on the ambient air quality dispersion modeling analysis conducted for permitted emissions from the proposed facility that the impacts from n-hexane will be under the RfC and REL levels. The Department believes that facility changes considered under the proposed permit modification would not cause or contribute to a violation of any ambient air quality standard. The air quality classification for the immediate area of proposed Montola operation is considered “Unclassifiable or Better than National Standards” (40 CFR 81.327) for all pollutants.

Overall, any impacts to the air quality of the project area from Montola's proposed permit modification, including construction activities, would be minor and in compliance with all applicable MAAQS and NAAQS.

G. Unique, Endangered, Fragile, or Limited Environmental Resources

To identify any unique, endangered, fragile, or limited environmental resources in the immediate area of the proposed project, the Department contacted the Montana Natural Heritage Program of the Natural Resource Information System (NRIS), which catalogues species of special concern of the U.S. Forest Service, U.S. Fish and Wildlife Service; and Bureau of Land Management. NRIS did not identify any species of special concern in the 1-mile buffer area surrounding the section, township, and range of the proposed facility. However, the inferred extent of the habitat for two species (the Eastern Red Bat and Townsend's Big-eared Bat) ends within a mile of the Montola facility.

The impact to unique, endangered, fragile or limited environmental resources from this project would be minor because the project would occur at an already disturbed site and would be minor in scope with respect to emissions increases. In addition, due to the plume characteristics from the proposed facility, the emissions would predominantly be carried to the north and east of the facility, away from the location of the species of special concern.

H. Demands on Environmental Resource of Water, Air, and Energy

As described in Section 7.B of this EA, this permitting action would have little to no effect on the environmental resource of water as there would be little or no change in discharges to groundwater or surface water associated with this permitting action.

As described in Section 7.F of this EA, the impact on the air resource in the area of the facility would be minor because the increase in air emissions from the proposed project are low and the facility would be required to maintain compliance with their air quality permit as well as national and state ambient air quality standards. There is no national or state ambient air quality standard for VOCs, however, VOC emissions are taken into consideration when evaluating compliance with the ozone standard.

A minor impact to the energy resource is expected, due to the increase in boiler steam demand for the expanded production. Overall, this is a small energy requirement. In addition, more energy would be required to power fans for moving the raw material and product through the system. Overall, the impacts to demands on environmental resource of water, air, and energy would be minor.

I. Historical and Archaeological Sites

The proposed project would occur within the boundaries of the existing Montola facility area. That area had been previously disturbed by agricultural activities. The Department contacted the Montana Historical Society – State Historic Preservation Office (SHPO) in an effort to identify any historical, archaeological, or paleontological sites or findings near the proposed project. SHPO's records indicate that there is no previously recorded historic site within the designated search locale. SHPO maintains that there is low likelihood that this project would impact unknown or unrecorded cultural properties. Overall, the impacts to historical and archaeological sites would be minor.

J. Cumulative and Secondary Impacts

Overall, the cumulative and secondary impacts from this project on the physical and biological aspects of the human environment would be minor because the impact with respect to the existing Montola facility is very small. In addition, the overall air impact from the proposed Montola facility is not expected to be significant.

8. The following table summarizes the potential social and economic effects of the proposed project on the human environment. The "no action" alternative was discussed previously.

Potential Social and Economic Effects							
		Major	Moderate	Minor	None	Unknown	Comments Included
A.	Social Structures and Mores				X		yes
B.	Cultural Uniqueness and Diversity				X		yes
C.	Local and State Tax Base and Tax Revenue			X			yes
D.	Agricultural or Industrial Production			X			yes
E.	Human Health			X			yes
F.	Access to and Quality of Recreational and Wilderness Activities				X		yes
G.	Quantity and Distribution of Employment			X			yes
H.	Distribution of Population				X		yes
I.	Demands for Government Services			X			yes
J.	Industrial and Commercial Activity			X			yes
K.	Locally Adopted Environmental Plans and Goals				X		yes
L.	Cumulative and Secondary Impacts			X			yes

SUMMARY OF COMMENTS ON POTENTIAL SOCIAL AND ECONOMIC EFFECTS: The following comments have been prepared by the Department.

A. Social Structures and Mores

The proposed project would not cause a disruption to any native or traditional lifestyles or communities (social structures or mores) in the area because the project would be constructed at an existing industrial site. The proposed project would not change the nature of the site in its permitted use.

B. Cultural Uniqueness and Diversity

The proposed project would not cause a change in the cultural uniqueness and diversity of the area because the land has been in use as an oilseed crushing and extracting facility since 1959; therefore, the land use would not be changing for this permit action.

C. Local and State Tax Base and Tax Revenue

This project would have a minor effect on the local and state tax base and tax revenue because the proposed change would allow Montola to increase the oilseed capacity from 300-tpd to 600-tpd.

D. Agricultural or Industrial Production

The proposed project would increase Montola's capability for processing oilseed; therefore, agricultural production would indirectly be effected since the market for oilseeds would be expanded from 300-tpd to 600-tpd.

E. Human Health

As described in Section 7.F of the EA, the impacts from this facility on human health would be minor because the emissions would be greatly dispersed before reaching an elevation where humans would be exposed.

The Department conducted a screening-level dispersion model for hexane. The model-predicted impacts were compared against screening threshold concentrations for cancer risk and acute and chronic non-cancer risks. All modeled concentrations were below the relevant screening threshold concentrations. In addition, as described in Section 7.F, the modeled impacts from the proposed project, taking into account other dispersion characteristics, are well below the MAAQS and NAAQS. The current permit action would incorporate conditions to ensure that the facility would be operated in compliance with all applicable rules and standards. These rules and standards are designed to be protective of human health. Therefore, any impacts to human health would be minor.

F. Access to and Quality of Recreational and Wilderness Activities

No significant recreational or wilderness activities exist at or near the Montola property boundaries. Based on the relatively small amount of emissions increase for the project (see Section 7.F of the EA) and the fact that there are no known recreational sites near Montola, there are no foreseen impacts to any recreational opportunities in the area.

G. Quantity and Distribution of Employment

The proposed project would require 10 new employees. In addition, the expansion allows for greater agricultural development. The impact of this project on employment in the area would be minor.

H. Distribution of Population

The proposed project does not involve any significant physical or operational change that would affect the location, distribution, density, or growth rate of the human population. Therefore, there would be no impacts to the distribution of population.

I. Demands of Government Services

The demands on government services would experience a minor impact. The primary demand on government services would be the acquisition of the appropriate permits by the facility (including local building permits, as necessary, and a state air quality permit) and compliance verification with those permits.

J. Industrial and Commercial Activity

The proposed change would allow Montola to increase production capacity from 300-tpd to 600-tpd of oilseed. The industrial and commercial activity of the surrounding area is not expected to increase. Therefore, little effect on the industrial and commercial activity would occur.

K. Locally Adopted Environmental Plans and Goals

The Department is unaware of any locally adopted environmental plans and goals that would be affected by the proposed change to the facility.

L. Cumulative and Secondary Impacts

Overall, the cumulative and secondary impacts from this project on the social and economic aspects of the human environment would be minor because minor impacts may be seen in the areas of human health, and demands of government services. The project is associated with an existing facility and would not change the culture or character of the area.

Recommendation: No Environmental Impact Statement (EIS) is required.

IF an EIS is not required, explain why the EA is an appropriate level of analysis: The current permitting action is for the modification of Montola's already permitted plant. Permit #2949-02 would include conditions and limitations to ensure the facility would operate in compliance with all applicable rules and regulations. Based on the foregoing review, there are no significant impacts associated with this proposal and the scope of the review is appropriate considering the nature and complexity of the project.

Other groups or agencies contacted or which may have overlapping jurisdiction: Department of Environmental Quality – Permitting and Compliance Division (Air Resources Management Bureau); Montana Natural Heritage Program; and State Historic Preservation Office (Montana Historical Society).

Individuals or groups contributing to this EA: Department of Environmental Quality (Air Resources Management Bureau and Water Quality Bureau) Montana Natural Heritage Program, and State Historic Preservation Office (Montana Historical Society).

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